

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Previously Presented) A method of filling an ink-jet head of an ink-jet printing apparatus with a liquid stored in a tank, the method comprising the steps of:

bringing a suction cap into close contact with a nozzle opening surface of the ink-jet head while a gas-permeable filter is positioned between the suction cap and the nozzle opening surface, the gas-permeable filter allowing a gas to pass therethrough and preventing the liquid from passing therethrough; and

sucking air within the suction cap with a pump connected to the suction cap so as to draw the liquid from the tank to the gas-permeable filter and fill the nozzle to a tip thereof with the liquid.

2. (Previously Presented) The method of filling an ink-jet head with a liquid claimed in Claim 1, wherein the gas-permeable filter allows the gas to pass therethrough and prevents the liquid from passing therethrough while a pressure on the gas-permeable filter from the pump is below a certain level.

3. (Previously Presented) The method of filling an ink-jet head with a liquid claimed in Claim 2, wherein the gas-permeable filter further comprises fine polytetrafluoroethylene fibers having a mean pore diameter of 1 to 3 μm .

4. (Previously Presented) The method of filling an ink-jet head with a liquid claimed in Claim 1, wherein the step of filling the nozzle with the liquid is preceded by a step of moving the ink-jet head to a non-ejection region outside a printing region of the ink-jet printing apparatus.

5. (Previously Presented) The method of filling an ink-jet head with a liquid claimed in Claim 1, wherein:

the ink jet head further comprises a plurality of the nozzles; and

in the step of bringing a suction cap into close contact with the nozzle opening surface of the ink-jet head, the gas-permeable filter is brought into close contact with all nozzle opening surfaces of the nozzles of the ink-jet head so as to cover all of the nozzle opening surfaces.

6. (Previously Presented) An ink-jet printing apparatus comprising:
an ink-jet head;
a tank supplying a liquid to be ejected to the ink-jet head;
a suction unit that is selectively pressable into close contact against a nozzle opening surface of the ink-jet head, the suction unit including:

a suction cap;

a gas-permeable filter provided at an ink jet head pressing surface of the suction cap; and

a pump connected to the suction cap;

wherein the gas permeable filter allows a gas to pass therethrough and prevents the liquid from passing therethrough.

7. (Previously Presented) The ink-jet printing apparatus claimed in Claim 6, wherein the gas-permeable filter allows the gas to pass therethrough and prevents the liquid from passing therethrough while a pressure on the gas-permeable filter from the pump is below a certain level.

8. (Previously Presented) The ink-jet printing apparatus claimed in Claim 7, wherein the gas-permeable filter further comprises fine polytetrafluoroethylene fibers having a mean pore diameter of 1 to 3 μm .

9. (Previously Presented) The ink-jet printing apparatus claimed in Claim 6, wherein at least one of:

an assembly provided with the suction unit; and

the suction cap;

is capable of being raised or lowered in a non-ejection region outside a printing region.

10. (Previously Presented) The ink-jet printing apparatus claimed in Claim 6 wherein the gas-permeable filter is adapted to be brought into close contact with all nozzle opening surfaces of all nozzles of the ink-jet head so as to cover all of the nozzle opening surfaces.

11. (Previously Presented) A method of filling an ejection head constituting an apparatus for manufacturing a micro-array by an ink-jet method, wherein the ejection

head is filled with a liquid stored in a tank by using the method of filling an ink-jet head with a liquid claimed in Claim 1.

12. (Previously Presented) An apparatus for manufacturing a micro-array by an ink-jet method, which is the ink-jet printing apparatus claimed in Claim 6.

13. (Previously Presented) An apparatus for manufacturing a micro-array, comprising:

a carriage that is movable in at least one direction on a stand;

a plurality of cartridges detachably mounted on the carriage, each cartridge storing a liquid and including an ejection head provided at a tip thereof for ejecting the liquid by an ink-jet method;

a table supporting a micro-array substrate relative to the carriage to enable manufacturing of a micro-array by ejecting drops of the liquid; and

a suction unit mounted on the stand so as to be raised or lowered while the carriage is in a housing position;

wherein the suction unit includes:

a suction cap connected to a pump; and

a gas-permeable filter supported by the suction cap, the gas-permeable filter being contactable with a face of the carriage, said gas permeable filter allowing a gas to pass therethrough and preventing the liquid from passing therethrough.

14. (Previously Presented) The apparatus for manufacturing a micro-array claimed in Claim 13, wherein an elastic sheet having a plurality of suction holes formed therein is interposed between the gas-permeable filter and the suction cap.

15. (Previously Presented) The apparatus for manufacturing a micro-array claimed in Claim 13, wherein the suction unit is of unitary construction.

16. (Previously Presented) The apparatus for manufacturing a micro-array claimed in Claim 13, wherein the ejection head further comprises a multi-reservoir head including a plurality of ejecting portions and a plurality of reservoir tanks.

17. (Previously Presented) The apparatus for manufacturing a micro-array claimed in Claim 13, wherein the table is movable in a direction perpendicular to the moving direction of the carriage.